

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) A projector comprising:

an ultrasonic speaker;

a visual information generation unit that generates visual information relating to a ~~sound reproduction range of the ultrasonic speaker~~ a spatial area in which a playback signal of an audio frequency band of the ultrasonic speaker is reached; and

an image projection unit that displays the visual information generated by the visual information generation unit on a screen.

2. (Currently Amended) A projector according to claim 1, wherein the

visual information relating to the ~~sound reproduction range spatial area, in which the playback signal of the audio frequency band of the ultrasonic speaker is reached,~~ and displayed on the screen includes at least one of sound reproduction range information, reproduction volume information, and direction information of sound reflected from the screen.

3. (Currently Amended) A projector according to claim 1, wherein the

ultrasonic speaker comprises: a carrier wave oscillation source that generates a carrier wave signal in an ultrasonic frequency band; an audible frequency oscillation source that generates a signal in an audible frequency band; a modulation section that

generates a modulated signal by modulating the carrier wave signal generated from the carrier wave oscillation source using the signal in the audible frequency band from the audible frequency oscillation source; a power amplifier that amplifies the modulated signal; an ultrasonic transducer that converts the modulated signal amplified by the power amplifier into sound waves of a finite amplitude level and radiates the sound waves through a medium; a reproduction range setting section that sets ~~a sound reproduction range~~the spatial area in which the playback signal of the audio frequency band of the ultrasonic speaker is reached, volume, and other predetermined settings of the ultrasonic transducer and stores the setting information; and a reproduction range control processing section that adjusts the signal of the audible frequency band generated using the carrier wave oscillation source based on the settings of the reproduction range setting section,

the projector further comprising:

a distance measuring section that measures the distance between the screen and the projector;

a visual information generation section that generates the visual information relating to the ~~sound reproduction range~~spatial area in which the playback signal of the audio frequency band of the ultrasonic speaker is reached, based on the setting information set by the reproduction range setting section and on information of the distance between the screen and the projector measured by the distance measuring section; and

an image projection section that projects visual information generated by the visual information generation section.

4. (Currently Amended) A projector according to claim 1, comprising:

a plurality of ultrasonic speakers; and

a unit that generates visual information relating to ~~a sound reproduction range~~
the spatial area in which the playback signal of the audio frequency band of the
ultrasonic speaker is reached, of each ultrasonic speaker and displays the visual
information on the screen.

5. (Currently Amended) A method for displaying ~~sound reproduction~~
~~range~~a spatial area in which a playback signal of an audio frequency band of an
ultrasonic speaker is reached, in a projector equipped with ~~an~~the ultrasonic speaker,
the method comprising the steps of:

generating visual information relating to ~~a sound reproduction range~~the spatial
area in which the playback signal of the audio frequency band of the ultrasonic speaker
is reached, ~~of the ultrasonic speaker;~~ and

displaying the visual information generated in the step of generating visual
information on a screen.

6. (Currently Amended) A method for displaying ~~sound reproduction~~
~~range~~the spatial area in which the playback signal of the audio frequency band of the
ultrasonic speaker is reached, in a projector, according to claim 5, wherein the visual
information relating to ~~the sound reproduction range~~the spatial area in which the
playback signal of the audio frequency band of the ultrasonic speaker is reached, and

displayed on the screen includes at least one of sound reproduction range information, reproduction volume information, and direction information of sound reflected from the screen.

7. (Currently Amended) A method for displaying ~~sound reproduction range~~ the spatial area in which the playback signal of the audio frequency band of the ultrasonic speaker is reached, in a projector, according to claim 5, wherein the projector comprises a plurality of ultrasonic speakers,

the method comprising the steps of:

generating visual information relating to ~~a sound reproduction range~~ the spatial area in which the playback signal of the audio frequency band of the ultrasonic speaker is reached ~~of each ultrasonic speaker~~; and

displaying the visual information on the screen.